WHAT IS CLAIMED IS:

1. A method of displaying real-time, three-dimensional weather information, comprising:

generating, from data obtained from a first radar scan, a first representation of a weather event along a first plane;

generating, from data obtained from a second radar scan, a second representation of the weather event along a second plane, where the second plane is non-coplanar with the first plane;

combining the first and second representations to form a three-dimensional model of the weather event;

constructing a three-dimensional shape of the three-dimensional model; and

displaying the three-dimensional shape on a display.

2. The method of claim 1, wherein the second plane is substantially orthogonal to the first plane.

3. The method of claim 2, wherein the first radar scan is a first airborne radar scan, and wherein the second radar scan is a second airborne vertical radar scan performed at a bearing relative to the aircraft, said bearing corresponding to a predetermined part of the first representation.

4. The method of claim 3, wherein the predetermined part is a center of the first representation.

5. The method of claim 3, further comprising:

generating, from data obtained from a third airborne radar scan, a third representation of the weather event along a third plane, where the third plane is non-coplanar with the first and second planes;

combining the third representation with the first and second representations to update the three-dimensional model; and

updating the three-dimensional shape based on the updated three-dimensional model.

6. The method of claim 5, wherein at least one of the second and third airborne radar scans are conducted in a substantially vertical plane that is substantially orthogonal to the first plane.

7. A method of rendering, in an aircraft, a three-dimensional model of a weather event, comprising:

performing a first airborne radar scan across a first plane, where the first plane is generally horizontal;

extracting intensity data based upon reflectivity detected during the first radar scan;

generating a first shape descriptor that represents the weather event along the first plane;

determining a location of the weather event;

performing a second airborne radar scan across a second plane, where the first and second planes are substantially non-coplanar;

extracting intensity data based upon reflectivity detected during the second radar scan;

generating a second shape descriptor that represents the weather event along the second plane;

combining the first shape descriptor and the second shape descriptor to form a three-dimensional model of the weather event; and

constructing a three-dimensional shape from the three-dimensional model, wherein the three-dimensional shape is configured for display on an airborne display.

8. The method of claim 7, wherein the second plane is generally horizontal and is generally parallel to the first plane.

9. The method of claim 7, wherein the second plane is substantially orthogonal to the first plane.

10. The method of claim 9, wherein the second airborne radar scan is performed in a predetermined direction relating to the location of the weather event.

11. The method of claim 10, wherein the predetermined direction is obtained by

calculating a center of the weather event along the first plane, and

determining a bearing of the center relative to the aircraft, wherein the bearing is the predetermined direction.

12. The method of claim 10, wherein the predetermined direction is obtained by

determining a location in the weather event along the first plane corresponding to a level of intensity higher than other portions of the weather event, and

determining the bearing of the location relative to the aircraft, wherein the bearing is the predetermined direction.

13. The method of claim 7, further comprising:

performing a third airborne radar scan across a third plane, where the first, second and third planes are non-coplanar;

extracting intensity data based upon reflectivity detected during the third radar scan;

generating a third shape descriptor that represents the weather event along the third plane;

combining the third shape descriptor to the first and second shape descriptors to update the three-dimensional model of the weather event; and

updating the three-dimensional shape using the updated three-dimensional model.

14. The method of claim 13, wherein at least one of the second and third planes are substantially orthogonal to the first plane.

15. The method of claim 13, wherein at least one of the second and third planes are generally parallel to the first plane.

16. The method of claim 7, further comprising rendering the three-dimensional shape on an airborne display, where the airborne display concurrently renders three-dimensional terrain information.

17. The method of claim 7, wherein the three-dimensional model is formed in part by factoring in a change in volume of the weather event.

18. The method of claim 7, wherein the three-dimensional model is supplemented by information from one of ground-based weather radar and weather information detected by another aircraft.

19. An airborne weather radar system for obtaining and displaying real-time weather information in a three-dimensional format in an aircraft, comprising:

an airborne horizontal scanning radar apparatus that periodically scans along a generally horizontal plane;

a processor that determines a weather event based upon reflectivity readings from the horizontal scanning radar apparatus, the processor further generating a first shape descriptor representative of the weather event as detected along the generally horizontal plane;

an airborne vertical scanning radar apparatus that scans along a vertical plane, the vertical plane having a bearing corresponding to a predetermined part of the first shape descriptor, wherein the processor generates a second shape descriptor representative of the weather event as detected along the vertical plane, and further wherein the processor generates a three-dimensional model of the weather event using the first and second shape descriptors; and

a display, upon which is rendered a three-dimensional shape that is based upon the three-dimensional model.

20. The airborne weather radar system of claim 19, further comprising a transceiver configured to receive ground-based weather radar information, wherein the processor incorporates the ground-based weather radar information into the generation of the three-dimensional model of the weather event